

**REMARKS**

The Official Action mailed August 13, 2002 has been received and its contents carefully noted. Filed concurrently herewith is a *Request for One Month Extension of Time*, which extends the shortened statutory period for response to December 13, 2002. Accordingly, Applicant respectfully submits that this response is being timely filed.

Applicants note with appreciation the consideration of the Information Disclosure Statements filed on April 14, 1998; June 7, 2000 as supplemented on August 1, 2000 and October 4, 2000; and January 25, 2002.

Claims 31-33, 49-51, 55-58, 65-67, 69, 99, 106-110, and 115-135 were pending in the present application. Claims 99, 106-108, 116-119, 122-123 and 128-132 have been withdrawn from consideration. Claims 31-33, 49-51, 55-58, 65-67, 69, 109-110, 115, 120-121, 124-127 and 133-135 are now subject to examination in the present application, of which claims 31-33, 55-56, 67, 69, and 109 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance.

Paragraph 1 of the Official Action rejects claims 31-32, 109, 120 and 124 as anticipated by U.S. Patent 4,796,979. It is well established that "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Applicants have amended independent claims 31, 32 and 109 to recite that at least a portion of a resin is contiguous to an orientation film and to a film provided over the second substrate. (specification, page 24, lines 8-19, and Fig. 1). It is respectfully submitted that Tsuboyama '979 does not disclose this feature of the present invention and that Tsuboyama '979 cannot anticipate the claims as amended herewith. Favorable reconsideration is requested.

Paragraph 2 of the Official Action rejects claims 33, 49-51, 55-58, 65-67, 110, 115, 125 and 127 as obvious based on U.S. Patent 4,775,225 to Tsuboyama and Tsuboyama '979. As stated in MPEP § 2143-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference

teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Independent claim 33 has been amended herewith to recite that at least a portion of a resin is contiguous to an orientation film and to a film provided over the second substrate. As noted above, it is respectfully submitted that Tsuboyama '979 does not disclose this feature of the present invention and that Tsuboyama '225 does nothing to overcome this deficiency. Since the prior art, taken alone or in combination, fails to teach or suggest all the claim limitations, it is respectfully submitted that a *prima facie* case of obviousness cannot be maintained.

Independent claims 55 and 56 are amended herewith to recite a column-shape resin as shown in Fig. 1. it is respectfully submitted that neither Tsuboyama '979 nor Tsuboyama '225 disclose or suggest this feature of the present invention. Since the prior art, taken alone or in combination, fails to teach or suggest all the claim limitations, it is respectfully submitted that a *prima facie* case of obviousness cannot be maintained.

Further, with respect to independent claims 67 and 69, it is respectfully asserted that neither of Tsuboyama '979 and Tsuboyama '225 teaches or suggests that a transmitted light amount of a pixel takes a halftone without occurrence of a domain. Since the prior art, taken alone or in combination, fails to teach or suggest all the claim limitations, it is again respectfully submitted that a *prima facie* case of obviousness cannot be maintained.

The Official Action rejects claims 31-33, 49-51, 55-58, 65-67, 69, 109-110, 115, 120-121, 124-127 and 133-135 under the doctrine of obviousness-type double patenting over claims 1-4 and 17-19 of U.S. Patent 5,594,569. it is respectfully submitted that the amendments submitted herewith are sufficient to distinguish the presently pending claims from the claims of the '569 patent and favorable reconsideration is requested in view thereof.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

Please amend claims 31-33, 55-56, and 109 as follows:

31. (Amended) A liquid crystal device comprising:  
[a pair of] first and second substrates;  
a liquid crystal layer comprising a ferroelectric liquid crystal provided  
between said first and second substrates;  
a resin disposed between [the pair of] said first and second substrates;  
an electrode provided over at least one of said first and second  
substrates for applying an electric field to said ferroelectric liquid crystal; [and]  
an orientation film provided over [at least one of said substrates,] said first  
substrate; and  
a film provided over said second substrate,  
wherein said resin covers said orientation film and at least a portion of  
said resin is contiguous to said orientation film and to said film provided over said  
second substrate,  
wherein said resin is formed by disposing a mixture of the liquid crystal  
and a curable resin between [the pair of] said first and second substrates and curing  
said curable resin.

32. (Amended) A liquid crystal device comprising:  
[a pair of] first and second substrates;  
a liquid crystal layer comprising a ferroelectric liquid crystal provided  
between said first and second substrates;  
a resin disposed between [the pair of] said first and second substrates;  
an electrode provided over at least one of said first and second  
substrates for applying an electric field to said ferroelectric liquid crystal; [and]  
an orientation film provided over [at least one of said substrates,] said first  
substrate; and  
a film provided over said second substrate,

wherein said resin covers said orientation film and at least a portion of said resin is contiguous to said orientation film and to said film provided over said second substrate,

wherein said resin is formed by disposing a mixture of the liquid crystal and a curable resin between [the pair of] said first and second substrates and curing said curable resin and intensity of light transmitted through the liquid crystal layer can be continuously changed in accordance with a strength of the electric field in an operation of the liquid crystal device.

33. (Amended) A liquid crystal device comprising:  
[a pair of] first and second substrates;  
a liquid crystal layer comprising [a] an antiferroelectric liquid crystal provided between said first and second substrates;  
a resin disposed between [the pair of] said first and second substrates;  
an electrode provided over at least one of said first and second substrates for applying an electric field to said antiferroelectric liquid crystal; [and]  
an orientation film provided over [at least one of said substrates,] said first substrate; and  
a film provided over said second substrate,  
wherein said resin covers said orientation film and at least a portion of said resin is contiguous to said orientation film and to said film provided over said second substrate,

wherein said resin is formed by disposing a mixture of the liquid crystal and a curable resin between [the pair of] said first and second substrates and curing said curable resin.

55. (Amended) A liquid crystal device comprising:  
a pair of substrates;  
a liquid crystal layer comprising a ferroelectric liquid crystal provided between said substrates;  
a column-shape resin disposed between the pair of substrates;

an electrode provided over at least one of said substrates for applying an electric field to said ferroelectric liquid crystal;  
an orientation film provided over at least one of said substrates; and  
a spacer provided between said substrates,  
wherein said column-shape resin is formed by disposing a mixture of the liquid crystal and a curable resin between the pair of substrates and curing said curable resin.

56. (Amended) A liquid crystal device comprising:  
a pair of substrates;  
a liquid crystal layer comprising an antiferroelectric liquid crystal provided between said substrates;  
a column-shape resin disposed between the pair of substrates;  
an electrode provided over at least one of said substrates for applying an electric field to said antiferroelectric liquid crystal;  
an orientation film provided over at least one of said substrates;  
a spacer provided between said substrates,  
wherein said column-shape resin is formed by disposing a mixture of the liquid crystal and a curable resin between the pair of substrates and curing said curable resin.

109. (Amended) A liquid crystal device comprising:  
[a pair of] first and second substrates;  
a liquid crystal layer comprising a ferroelectric liquid crystal provided between said first and second substrates;  
a resin disposed between [the pair of substrates;] said first substrate;  
an electrode provided over at least one of said substrates for applying an electric field to said ferroelectric liquid crystal; [and]  
an orientation film provided over [at least one of said substrates,] said first substrate; and  
a film provided over said second substrate,

wherein said resin covers said orientation film and at least a portion of said resin is contiguous to said orientation film and to said film provided over said second substrate,

wherein said resin is formed by disposing a mixture of the liquid crystal and a curable resin between [the pair of] said first and second substrates and curing said curable resin, and

wherein transmitted light amount of said liquid crystal layer continuously varies in response to voltage applied to said liquid crystal layer.